

Listing of Claims

1-20. (Canceled)

21. (New) A method of simultaneously determining the alleles present in at least three short tandem repeat loci from one or more DNA samples, comprising:

- (a) obtaining at least one DNA sample to be analyzed;
- (b) selecting a set of at least three short tandem repeat loci of the DNA sample to be analyzed which can be amplified together, wherein the at least three short tandem repeat loci in the set comprises at least three loci selected from the group consisting of:

HUMTPOX, HUMVWFA31 and HUMCSF1PO;

HUMHPRTB, HUMFESFPS and HUMVWFA31;

HSAC04 (ACTBP2), HUMCYP19 and HUMPLA2A1;

HUMAPOA2, HUMCYP19 and HUMPLA2A1;

HUMCD4, HUMCSF1PO and HUMTH01;

HUMCYP19, HUMFABP and HUMPLA2A1;

HUMCYP19, HUMHPRTB and HUMPLA2A1;

HUMHPRTB, HUMFESFPS and HUMLIPOL;

HLTMF13A01, HUMFABP and HUMCD4;

HUMHPRTB, HUMBFXIII (F13B) and HUMPLA2A1;

HUMHPRTB, HUMBFXIII (F13B) and HUMTPOX;

HUMHPRTB, HUMBFXIII (F13B) and HUMFESFPS;

HUMBFXIII (F13B), HUMFESFPS and HUMLIPOL;

HUMCSF1PO, HUMTPOX and HUMCD4;

HUMHPRTB, HUMFESFPS and HUMMYOPK (Myotonic);

HUMCSF1PO, HUMTH01 and HUMCD4;

HUMCSF1PO, HUMTH01 and HUMVWFA31; and

HUMHPRTB, HUMBFXIII (F13B) and HUMLIPOL;

- (c) co-amplifying the set of at least three short tandem repeat loci in a multiplex amplification reaction, wherein the product of the reaction is a mixture of amplified alleles from each of the co-amplified loci in the set; and
- (d) evaluating the amplified alleles in the mixture to determine the alleles present at each of the co-amplified loci in the set.

22. (New) A method of simultaneously determining the alleles present in at least three short tandem repeat loci from one or more DNA samples, comprising:

- (a) obtaining at least one DNA sample to be analyzed;
- (b) selecting a set of at least three short tandem repeat loci of the DNA sample to be analyzed which can be amplified together, wherein the at least three short tandem repeat loci in the set comprises HUMTPOX, HUMTH01 and HUMCSF1PO;
- (c) co-amplifying the set of at least two short tandem repeat loci in a multiplex amplification reaction, wherein the product of the reaction is a mixture of amplified alleles from each of the co-amplified loci in the set; and
- (d) evaluating the amplified alleles in the mixture to determine the alleles present at each of the co-amplified loci in the set.

23. (New) A method of simultaneously determining the alleles present in at least four short tandem repeat loci from one or more DNA samples, comprising:

- (a) obtaining at least one DNA sample to be analyzed;
- (b) selecting a set of at least four short tandem repeat loci of the DNA sample to be analyzed which can be amplified together, wherein the at least four short tandem repeat loci in the set comprises at least four loci selected from the group consisting of: HUMHPRTB, HUMFESFPS, HUMBFXIII (F13B) and HUMLIPOL; and HUMCSF1PO, HUMTPOX, HUMTH01, and HUMCD4;
- (c) co-amplifying the set of at least two short tandem repeat loci in a multiplex amplification reaction, wherein the product of the reaction is a mixture of amplified alleles from each of the co-amplified loci in the set; and
- (d) evaluating the amplified alleles in the mixture to determine the alleles present at each of the co-amplified loci in the set.

24. (New) A method of simultaneously determining the alleles present in at least four short tandem repeat loci from one or more DNA samples, comprising:

- (a) obtaining at least one DNA sample to be analyzed;
- (b) selecting a set of at least four short tandem repeat loci of the DNA sample to be analyzed which can be amplified together, wherein the at least four

short tandem repeat loci in the set comprises at least four loci comprising: HUMCSF1PO, HUMTPOX, HUMTH01 and HUMVWFA31;

- (c) co-amplifying the set of at least two short tandem repeat loci in a multiplex amplification reaction, wherein the product of the reaction is a mixture of amplified alleles from each of the co-amplified loci in the set; and
- (d) evaluating the amplified alleles in the mixture to determine the alleles present at each of the co-amplified loci in the set.